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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,176	06/25/2003	Osamu Goto	09792909-5625	3458
26263	7590	09/23/2004	EXAMINER	
SONNENSCHN NATH & ROSENTHAL LLP			NADAV, ORI	
P.O. BOX 061080			ART UNIT	
WACKER DRIVE STATION, SEARS TOWER			PAPER NUMBER	
CHICAGO, IL 60606-1080			2811	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	Application No. 10/606,176	Applicant(s) GOTO ET AL.	
	Examiner ori nadav	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 146-205 is/are pending in the application.
- 4a) Of the above claim(s) 146-170 and 177-205 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 171-176 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/25/03</u>   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Election/Restrictions***

Applicant's election of the embodiment of figure 6 (claims 146-157 and 171-183) in the reply filed on 9/13/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 146-157 and 177-182 which include the limitation of an intermediate layer containing In and Ga, are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected embodiment.

***Specification***

The abstract of the disclosure is objected to because the phrase "is includes" should read "includes". Correction is required. See MPEP § 608.01(b).

***Claim Objections***

Claims 171-176 are objected to because of the following informalities: Claim 171 recites third nitride and sixth nitride without having lower nitride numbers. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 171-176 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed limitation of a cap layer in contact with the intermediate layer, as recited in claim 171, is unclear as to which layer is the intermediate layer.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 171-173, insofar as in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 102(b) as being anticipated by Schetzina (5,670,798).

Schetzina teaches in figure 3 and related text a semiconductor light emitting device comprising:

an active layer 112 InGaN made of a first nitride III-V compound semiconductor containing In and Ga;

an optical guide layer GaN in contact with the active layer and made of a sixth nitride III-V compound semiconductor containing Ga (column 10, lines 31-34);

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a cap layer AlGa<sub>N</sub> in contact with the intermediate layer and made of a third nitride III-V compound semiconductor containing Al and Ga; and  
a p-type clad layer AlGa<sub>N</sub> in contact with the cap layer and made of a seventh nitride III-V compound semiconductor containing Al and Ga and different from the third nitride III-V compound semiconductor, wherein

the cap layer has a band gap larger than that of the p-type clad layer, and  
wherein the cap layer is Al<sub>y</sub>Ga<sub>1-y</sub>N (where  $0 \leq y < 1$ ).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 174-176 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schetzina.

Regarding claim 175, Schetzina teaches in the embodiment of figure 3 substantially the entire claimed structure, as applied to claim 171 above, except an undoped optical guide layer. Schetzina teaches in the embodiment of figure 29 an undoped optical guide layer 124c. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use an undoped

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optical guide layer in Schetzina's device in order to use the device in an application which requires an undoped optical guide layer.

Regarding claims 174 and 176, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to a cap layer having a thickness equal to or more than 2 nm, and an optical guide layer having a thickness equal to or more than 8 nm, in Schetzina's device, in order to optimize the characteristics of the device according to the requirements of the application in hand.

**Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.**

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is

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**(571) 272-1660.** The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

A handwritten signature in black ink, appearing to read 'Ori Nadav', is positioned above the printed name.

O.N.  
9/22/04

ORI NADAV  
PRIMARY EXAMINER  
TECHNOLOGY CENTER 2800